UNITED STATES PATENT OFFICE.

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TELEPHONE-RECEIVER.

SPECIFICATION forming part of Letters Patent No. 631,354, dated August 22, 1899.

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To all whom it may concern:

Be it known that I, JOSEPH A. WILLIAMS, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Telephone-Receivers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same.

My invention relates to improvements in telephone-receivers.

The primary object of the invention is to so support the bobbin from the case and to so construct the bobbin and engaging magnet-pole that the space between the pole-tip and diaphragm shall not be affected by expansion and contraction of the case and magnet and that rough or careless handling of the instrument shall not affect the adjustment of the bobbin and its engaging magnet-pole.

With this object in view and to the end of attaining other advantages hereinafter specified and to render the instrument light, durable, and efficient my invention consists in certain features of construction and combinations of parts hereinafter described, and pointed out in the claims.

In the accompanying drawings, Figure I is a side view, mostly in longitudinal section, of an instrument embodying my invention. Fig. II is a longitudinal section on line II II, Fig. I. Fig. III is a transverse section on line III III, Fig. I. Fig. IV is a transverse section on line IV IV, Fig. I, looking in the direction of the arrow.

Referring to the drawings, A designates the tubular or hollow case of the instrument, which case is preferably made of polished ebonite or vulcanized rubber in the usual manner.

B designates the permanent magnet, that is suitably arranged within and longitudinally of the case A. The said magnet is in the case illustrated of the compound or laminated variety and is made up of five bars provided with iron poles B′ B^2, partially embraced by opposite ends, respectively, of the central bar b of the magnet.

The case A at one end is provided with the binding-post bearing-head C and at its opposite end has the earpiece D. Pole-piece B′, and consequently the magnet, is secured to head C by the screw C′. The said pole-piece B′ is provided with an ear b', that extends between the four outer bars of the magnet and engages a recess b^2, formed in the adjacent end of the magnet's central bar, that therefore partially embraces the said ear widthwise of the said bar. A bolt E, that extends through the said ear and through the four outer bars of the magnet, together with a nut e, that is mounted upon the threaded shank of the bolt, clamps the said bars of the magnet and ear together. The other pole of the magnet comprises, preferably, a bunch of soft-iron or magnetic wires B^3, that are bent around a bolt F, employed in securing together the other ends of the bars of the magnet and that have their ends crowded into but slidable endwise of the hollow hub or core G′ of the bobbin G, which core is composed of suitably-magnetic material—such, for instance, as soft iron—and forms a part of the magnet-pole, comprising the said wires, and constitutes the tip of the said pole. The central bar of the magnet is recessed, as at b^3, to accommodate its partially embracing the bend in the said iron wires, as shown in Figs. I and II. The bolt F, around which the said wires are bent and that extends through the four outer bars of the magnet, and the nut f, that is mounted upon the threaded shank of the said bolt, hold the said wires and the magnet-bars together. It will be observed, therefore, that the central bar of the magnet is positively prevented from edgewise displacement laterally of the instrument by the members or portions of the pole-sections that are partially embraced by the said bar.

The instrument's earpiece is provided with a centrally-located aperture d in the ordinary manner.

Case A is enlarged diametrically in the usual manner at is bobbin-containing end, that is annular and provided externally with screw-threads engaged by the correspondingly internally threaded annular flange B′ of the earpiece, that at the inner end of its flange and internally is provided with an annular shoulder d', arranged to hold in place against the adjacent end of case A the dia-